COVID-19 Workspace Safety Plan – Lab Specific

Use of this template: *All light italicized grey font are instructional and must be removed before final copy is approved.*

This workspace safety plan will assist Principal Investigators who wish to continue or resume research activities in their lab. This plan will include a review of activities to be undertaken in the lab to ensure effective controls are in place to prevent the spread of COVID-19. Principal Investigators are responsible for ensuring this document reflects current government guidance and notices which can be found, along with information about UBC's response to the pandemic at https://covid19.ubc.ca/.

This plan must be reviewed by your Local Safety Team, and signed by your Unit Head/Director. Once complete, the plan can be submitted with your online application to return to research.

Resources to Consult

The following guidance documents and resources were used in the development of this plan:

☐**Preventing Exposure**	☐**Communications Resources**
☐**Personal Protective Equipment**	☐UBC Research Resumption webpage
☐**Physical Distancing Guidelines**	☐WorksafeBC
☐**Reporting COVID-19 Exposure**	

Section #1: Lab information

Department	Electrical and Computer Engineering
Faculty	Applied Science
Building(s)	*Kaiser*
Lab(s)/workspace(s)	*K3085-A, K3085-B*

Introduction to Your Lab

Provide a brief overview of your lab(s) and other used/shared facilities, current size of your group and your general research area (1-2 sentences).

The Electric Power and Energy Systems (EPES) research group is composed of Dr. Christine Chen, Dr. Dommel, Dr. William Dunford, Dr. Juri Jatskevich, Dr. Jose Marti, and Dr. Martin Ordonez. The group conducts research in various areas and aspects of energy systems, integration and control of renewable energy systems and sources, power electronic converters and systems, smart energy grids, AC-DC systems, electric machinery and controls, real-time simulation, and critical infrastructure interdependencies.

All the students supervised by Dr. Juri Jatskevich reside in the laboratory K3085 for which this plan is prepared. The space in K3085 is divided into two parts: Kaiser 3085-A Office Space, and Kaiser 3085-B Experimental Space, which are used by the graduate students and research personnel supervised by Dr. Christine Chen, Dr. William Dunford, Dr. Juri Jatskevich and Dr. Jose Marti.

Kaiser 3085-A room has a capacity of 27 desks in cubicles, most of which also have computers. The desks/cubicles are arranged in rows and are separated by partitions and walking paths that create working zones.

Kaiser 3085-B has 3 experimental benches, 1 instrumentation table, 2 real-time simulator benches with equipment, 1 high-power machine testing bench, and 1 floor machine setup, with a total nominal capacity of up to 8 people.

I confirm that I have discussed this plan with my students as well as with my colleagues: Dr. Christine Chen, Dr. Jose Marti, and Dr. Dunford, and I have solicited their input and feedback. The main concerns are from the students and researchers, and these appear to be mostly regarding obtaining and using the PPEs (which are supposed to be purchased centrally by UBC and made available through ECE LST to the researchers). My students have also provided very valuable suggestions particularly regarding the Work-Alone procedure (i.e. when and how it should be used, and implementation of live monitoring).

Dr. Christine Chen and Dr. Jose Marti currently do not have plans on bringing their students back to the lab Kaiser 3085, and Dr. William Dunford is planning to bring one student and will be submitting a separate application as per the APSC guidelines.

Section #2 - Risk Assessment

1. Lab/workspace Occupancy (under proposed COVID-19 operations)
List the number of people that will be present in your lab/workspace at the same time. List this by every room/lab/workspace you occupy.

Confirm that you have discussed each employee's comfort level with returning to work and have addressed any concerns, or will require further assistance in doing so. *Any worker (staff, students, faculty, post docs, research associates, technicians and other research personnel) who has concerns about returning to work on campus can request an exemption to his/her supervisor.*

- *Provide actual numbers and percentage of previous i.e. 1/3 of 'normal' operations*
- *Outline who remains working remotely and who you've requested back to work and why*

Presently, all our research personnel and students are working remotely from their homes. We have also enabled remote access to some of our real-time simulators, and our students do certain simulations (that do not require hardware-in–the-loop or physical reconfigurations) remotely.

I am submitting this plan to obtain permission for several members of my group to access the Kaiser 3085-A and -B labs during the Phase 1, for the purpose of **very infrequent (2 to 3 times per week) use of experimental facilities in our lab, only for when it cannot be done remotely**. Specifically, the access is requested for 2 MASc students, 2 PhD students, and 2 Post-Doctoral Fellows, although the total number of students allowed to enter the K3085 A&B combined will be limited to 4 persons at a time..

The room K3085 has one common Main Entrance, which also allows the students to enter Kaiser 3085-B through a separate door with a FOB access. Kaiser 3085-A has two additional Exits, and only one of them will be used to ensure unidirectional traffic in the lab. Kaiser 3085-B has only one exit, which complies with the need for unidirectional traffic.

We have discussed the current situation in our group, and the specified students are very eager and willing to come in order to advance their experimental work and research goals. We also discussed that if this plan gets approved and they are allowed to come, it is not required of them to come to the lab if they do not feel safe, and if they do so, it will be absolutely on a voluntary basis.

To minimize the risks, we agreed that they would be able to come to the lab only on specific days during predetermined time slots no more than 2 or 3 times per week, on a very tightly controlled schedule. We propose to limit the physical presence such that there are no more than 2 people in either Kaiser 3085-A and 3085-B labs. We will schedule the work visits such that no more than a total of 4 people will be in both the Kaiser 3085-A and 3085-B labs at any given time, and that they will always maintain the recommended physical distance and use PPEs as expected. So, with an expected maximum presence of 2 persons in room K3085-A which has the total capacity of 27, the occupancy ratio will be 7.4% or lower; and with an expected maximum presence of 2 persons in room K3085-B which has capacity of 8, the occupancy will be 25% or lower, respectively.

2. Hazard Identification

Describe what hazards exist in your lab/workspace; both research- related (chemicals, heavy machinery) and COVID-19-related (areas that require closer personal interaction, equipment/instruments that cannot maintain physical distancing i.e. that require >1 person to operate)

Hazards (non-COVID-19):

(1) High power rotating electric machinery, and (2) High live voltages and currents on the floor machines set and on the experimental benches. No one is permitted to conduct experiments with HIGH VOLTAGE (>50V DC/AC) or HIGH POWER (>1KW) alone! Two or more authorized students must be present and work together to conduct any such experiments.

Prevention: Only trained and experienced students are allowed to conduct experiments in lab K3085-B. To further minimize risks, no high-power or high-voltage experiments will be conducted during this limited access period. For increased safety, the permitted laboratory experiments shall be conducted using reduced power (<1KW) and voltages not exceeding 50 Volts DC or AC.

Hazards (COVID-19):

(1) Touching common equipment, work surfaces, handling of tools, buttons and knobs on equipment, computer keyboards and mice.

Prevention: only 1 person allowed per working area. Cleaning precautions: Alcohol disinfectant and wipes will be made available for each of the common areas. Shared equipment will be scheduled and will be cleaned both before and after use. Computers that are attached to the real-time simulators will have their keyboard and mouse cleaned both before and after use with alcohol disinfectant, and/or the students will be required to use gloves when needing to use these computers. A 72-hour rest-time will be implemented between the uses of any common equipment by different uses.

(2) Personnel working too close to one another:

Prevention: Physical distancing larger than 2m will be always followed. In addition, we will enforce a single direction for entering and exiting the labs K3085-A and K3085-B, with the entrance on the North side and exit on the South side. Whenever possible, we will ask personnel to wear personal protective equipment, especially face masks, when moving away from their normal work area and distantly interacting with other people. The maximum occupancy will be 2/27 = 7.4% for K3085-A lab and 2/8 = 25% for K3085-B, respectively, which will help to maintain safe physical distancing larger than 2m.

All persons who desire to return to the lab have already completed the online training course on Preventing COVID-19 Infection in the Workplace and pass the test. Only after that may one be permitted to access the lab.

Link to the online course: https://wpl.ubc.ca/browse/srs/courses/wpl-srs-covid

3. Employee (HQP, research staff, other) Input/Involvement

Detail how you have involved frontline workers (HQP and research staff) and Joint Occupational Health and Safety Committees (JOHSC) and/or Local Safety Teams (LST) in identifying risks and protocols as part of this plan.

Describe how you will **publish** your plan (online, hardcopy) and otherwise communicate workplace health measures to employees. Guidelines from SRS are available here: https://srs.ubc.ca/covid-19/health-safety-covid-19/working-safely/

- ***Your plan must be approved by your Head/Director***
- *Final plans will be posted to UBC's COVID-19 Safety Plan website. An alert noting the plan availability and link to this final posting must be included on the main root site of your department or faculty.*

As a means to educate myself on the hazards and risks, I have read all of the COVID-19 related guidelines published on the UBC website. I have also taken the online required training course on Preventing COVID-19 Infection in the Workplace on 7 July 2020 and successfully passed the test.

This was supplemented by attending the town hall meetings on research curtailment and resumption. To identify hazards, risks, and strategies to mitigate related risks, I consulted with other professors who developed successful similar plans for their labs. We also discussed all these aspects within my group as well as with my colleagues in the EPES group. We have also discussed this plan with the members of our departmental Local Safety Teams (LST) on 23 July 2020, and have considered all their suggestions and recommendations.

After approval by our Department Head, our plan will be submitted to the Faculty of Applied Science, and published according to UBC directives. It will also be posted on our group's website and distributed to all members, for implementation and possible future updates.

The plan was developed in collaboration with my research group and my colleagues Dr. Christine Chen and Dr. Jose Marti. The final plan will be posted to UBC's

appropriate safety plan website and the ECE department website. Room maps and maximum occupancy will be posted on the four doors of Kaiser 3085-A and 3085-B.

Section #3 – Hazard Elimination or Physical Distancing

The following general practices shall be applied for all UBC buildings and workspaces:

- *Where possible, workers (HQP, research staff, others) are instructed to work from home.*
- *Anybody who has travelled internationally, been in contact with a clinically confirmed case of COVID-19 or is experiencing "flu like" symptoms must stay at home.*
- *All employees are aware that they must maintain a physical distance of at least 2 meters from each other at all times*
- *Do not touch your eyes/nose/mouth with unwashed hands*
- *When you sneeze or cough, cover your mouth and nose with a disposable tissue or the crease of your elbow, and then wash your hands*
- *All employees are aware of proper handwashing and sanitizing procedures for their workspace*
- *Supervisors must ensure large events/gatherings (> 50 people in a single space) are avoided*
- *Supervisors must ensure that all workers have access to dedicated onsite supervision at all times; via their own presence, members of safety committees, campus security or other. When working alone, HQP and staff must be aware of working alone procedures and how these have been adapted for COVID-19.*
- *All staff wearing non-medical masks are aware of the risks and limitations of the face covering they have chosen to wear or have been provided to protect against the transmission of COVID-19. See SRS website for further information.*
- *Note transportation/vehicle guidelines if applicable: 1 Person per vehicle, unless the vehicle is large enough to maintain 2m between occupants.*

4. Scheduling

For those required or wanting to resume work at UBC, detail how you are rescheduling employees (e.g. shifted start/end times) in order to limit contact intensity at any given time at UBC.

Discuss your **working alone procedures** and how they will be adapted for this safety plan. Also describe how you will track those entering/leaving work i.e. sign in/sign out process

- *At this time shift-work is not permitted*
- *Sign in/out processes can range from paper sign up sheets on lab door to 'fob' system with online tracking*
- *Coordinate starts/ends within shared labs (e.g. lab shared with two other research groups) to remain below the lab's maximum occupancy*

Assignment of time on experimental benches and real-time simulators will always be discussed in advance, based on the group priorities and the readiness of each individual student to embark on a meaningful experiment. First, readiness will be

discussed with the group and PI, and the priorities will be identified and planned. A 72-hour rest-time will be implemented between the uses of any common equipment by different users.

Tracking Entering/Exiting the Workspace: We have extensively discussed this process within our group, and based on the ideas that came from the students, we have agreed on the following: The complete safety document will be posted on the door to K3085. To track the activities within the lab while minimizing physical touching of the objects (e.g., paper sign-up sheets, pens/pencils, doors, etc.), an online Google Docs spreadsheet will be used by the researchers to record their arrivals to and departures from K3085. Prior to leaving the lab, this online document will also enable the researchers to state that they have followed the posted sanitization processes during their time in the lab and to confirm that they are not experiencing symptoms of infection. Access to the Google Docs spreadsheet will be enabled by a QR code

which will be posted on the K3085 main entrance. This document has been already created and is editable only by the researchers, but it is readable and viewable to the public. This will help to monitor the attendance of researchers in the lab in real-time and they can coordinate their attendance based on the posted schedules. This will also ensure that the occupancy is limited to 4 persons at a time.

The link to the spreadsheet file is provided below:

https://docs.google.com/spreadsheets/d/1gBqMoeidmxJNJ279Z91-rMFJVsdr8C_VGmYskv1Xjsc/edit?ts=5f0e6e15#gid=0

K3085 Scheduling/Tracking Spreadsheet

When coming to take experimental measurements and/or configure and work on the real-time simulators in K3085-B, the students may also use their desks and computers in K3085-A. While moving through the lab, the students will always make sure that the physical distancing of 2m or more is always maintained. The movement of people within the labs will be according to the arrows depicted in Figs. 1 and 2 on the plan.

Work-Alone Procedure: Researchers are generally not allowed to work alone in K3085 for any experiments that involve high voltage and/or high power. Any experimental work that involves high voltage and/or high power shall be conducted with a physical presence of at least another person in the lab. This is also consistent with the previously established Safety Rule for this lab. Due to COVID-19, the second person must maintain the required physical distance of 2 meters or more from the first person, as indicated by the circles in Fig. 2.

We also recognize that requirements of the second person may delay some research experiments due to the fact that physical attendance of other students may be limited at that specific time. Therefore, as a last resort for exceptional cases, after detailed discussion in our group, we propose the following Working Alone procedure with a real-time “Virtual Buddy” system. This applies only for the experimental work that uses low power (below 1000W) and low voltage (below 50 V AC/DC).

The researcher who needs to conduct experiments in K3085-B is required to discuss his/her experiment with the research supervisor, and identify another team member Virtual Buddy either through Slack channel or SMS/email messaging who would be available and agrees to be the Virtual Buddy for the duration of intended experimental work in K3085.

Upon approval from the supervisor and confirmation from the Virtual Buddy for virtually accompanying the researcher, they start a live video chat (via an appropriate method, e.g., Skype, Zoom, Microsoft Teams, etc.) using a dedicated lab PC which will be fitted with a tripod-mounted webcam that provides a complete view of the entire working area of K3085-B. The researcher and Virtual Buddy will remain in the real-time video chat for the entire duration of the laboratory experiments. A link to this video chat will be posted in the Google Doc spreadsheet, so that the supervisor and other team members can also check on the person who is working in the lab.

Upon completion of the work and immediately prior to leaving the lab, the researcher needs to fill out the online Google Docs spreadsheet for time/out.

We have discussed the Working Alone question in our group, and the students recognized that this should be used only as a last resort in special cases. The students came up with an idea of live video monitoring using webcams (instead of periodic checking through other means) since this provides the Virtual Buddy with real-time information on the status of the person working alone, and enables immediate response in case of emergency. We have already purchased webcams and tripods for this

purpose, and will bring them to the lab for this use. Since these webcams will be used for a limited duration of time, and only by those who are willing and have previously conceded to their use, we do not see any issues with privacy. Moreover, our students are more comfortable with this approach to ensure safety and fast response in case of emergency.

In case of a Medical Emergency, the Virtual Buddy has to immediately call 9-1-1. and then the UBC's First Aid at 604-822-4444.
In case of other Emergency Events, the Virtual Buddy has to immediately call UBC emergency services at 604-822-2222.

Immediately after that, in both cases, the Virtual Buddy will also quickly notify the ECE Safety Team (safety@ece.ubc.ca) and research supervisor (jurij@ece.ubc.ca, and 604-221-8048).

Appropriate signs will be posted in the lab.

A list of cell phone numbers of the students wishing to resume the work is already provided in the Google Doc as well as the Slack channel.

The **Slack channel** for live communication among researchers of this group has already been created named as:
UBCResearch [ubcresearchworkspace.slack.com]
Channel: covid_safety_plan

5. Occupancy limits, floor space, and traffic flows

APSC recognizes that labs are dynamic environments and it may be challenging to adhere to physical distancing guidelines. Nonetheless, controls must be in place to keep personnel spaced at least 2m apart at all times. Clear communication of this to employees, monitoring of implementation, in addition to physical controls (signage) are needed.

As such: Using floor plans and/or photographs of your lab/workspace:

1) Identify and list the rooms and **maximum occupancy** for each workspace/area;

The floor plans for K3085-A and K3085-B are provided below in Figs. 1 and 2. The maximum occupancy for these two labs are 27 and 8 people, respectively. It is envisioned that only up to 4 people will be simultaneously in both of these labs during this period.

2) Illustrate a 2 metre radius circle around stationary workspaces/benches/instruments and common areas or equivalent approach to physical distancing; and
3) Illustrate one-way directional traffic flows

Please see the floor plans for K3085-A and K3085-B in Figs. 1 and 2. The 2-meter radius circles are shown in green around the intended workplaces (benches) with real-time simulator equipment, electronics benches, motor bench, and the identified

students' desks. As it can be seen, physical distancing of 2 or more meters is easily maintained.

The one-way traffic flow is also shown using blue lines. The tables with PPEs and sanitizers are also shown in red.

- *Set up directional movements so people are moving in one direction of travel if possible*

  The directions of one-way movement of people is shown in Figs. 1 and 2. We need to request Matthew to put the same type of directional arrows on the floor (according to this plan) as he did in the Kaiser Building.

- *Where fire code and function allow, prop doors between communicating spaces open to limit the need to touch doorknobs. Alternatively, consider installing hands-free door foot openers, auto door sensors, or door openers that can be activated by elbow.*

  We will provide hand sanitizers by each entrance as indicated in Figs. 1 and 2, and prop the doors open while the laboratory is in use during this special period.

- *How have you reduced occupancy in your workspace/lab, especially high-traffic areas such as hand-washing areas? Did you use the 25-33% range?*

  It is envisioned that only up to 2 people will be simultaneously in either K3085-A and K3085-B labs during this period. So, the actual occupancy for these labs will be 7.4% and 25% max, respectively.

- *Are you able to separate incoming and outgoing worker entry/exit?*

  Yes. The entrances and exits are marked in Figs. 1 and 2, and the unidirectional movement of people is also marked such that there is a clear separation of incoming and outgoing workers.

- *Consider changes to accommodate 2m distancing on shared instruments, frequently-used materials & reagents, common areas, offices*

  The 2-meter or greater physical distancing is shown in Figs. 1 and 2. The shared equipment and real-time simulators will be used only by a single individual at a time and cleaned before and after their use. There will be an additional time

separation (of 72 hours) for at least one or more days if the common equipment will be used by another individual.

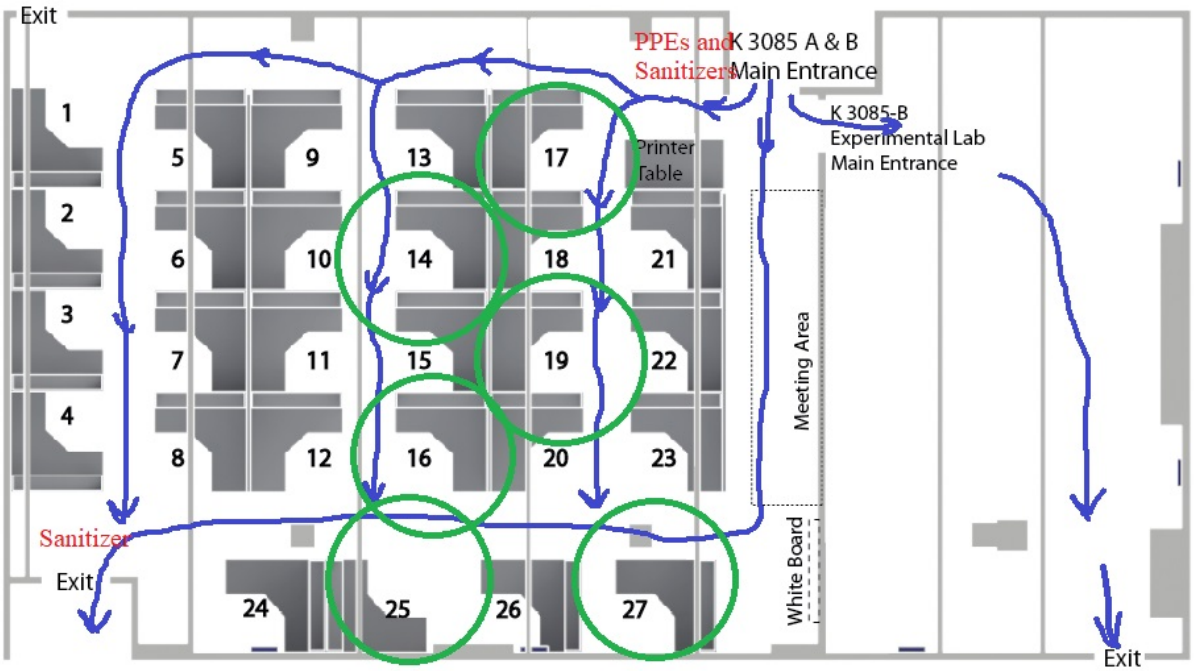

Fig. 1. Location of office desks in Kaiser 3085-A Office Spaces, and the direction of traffic.

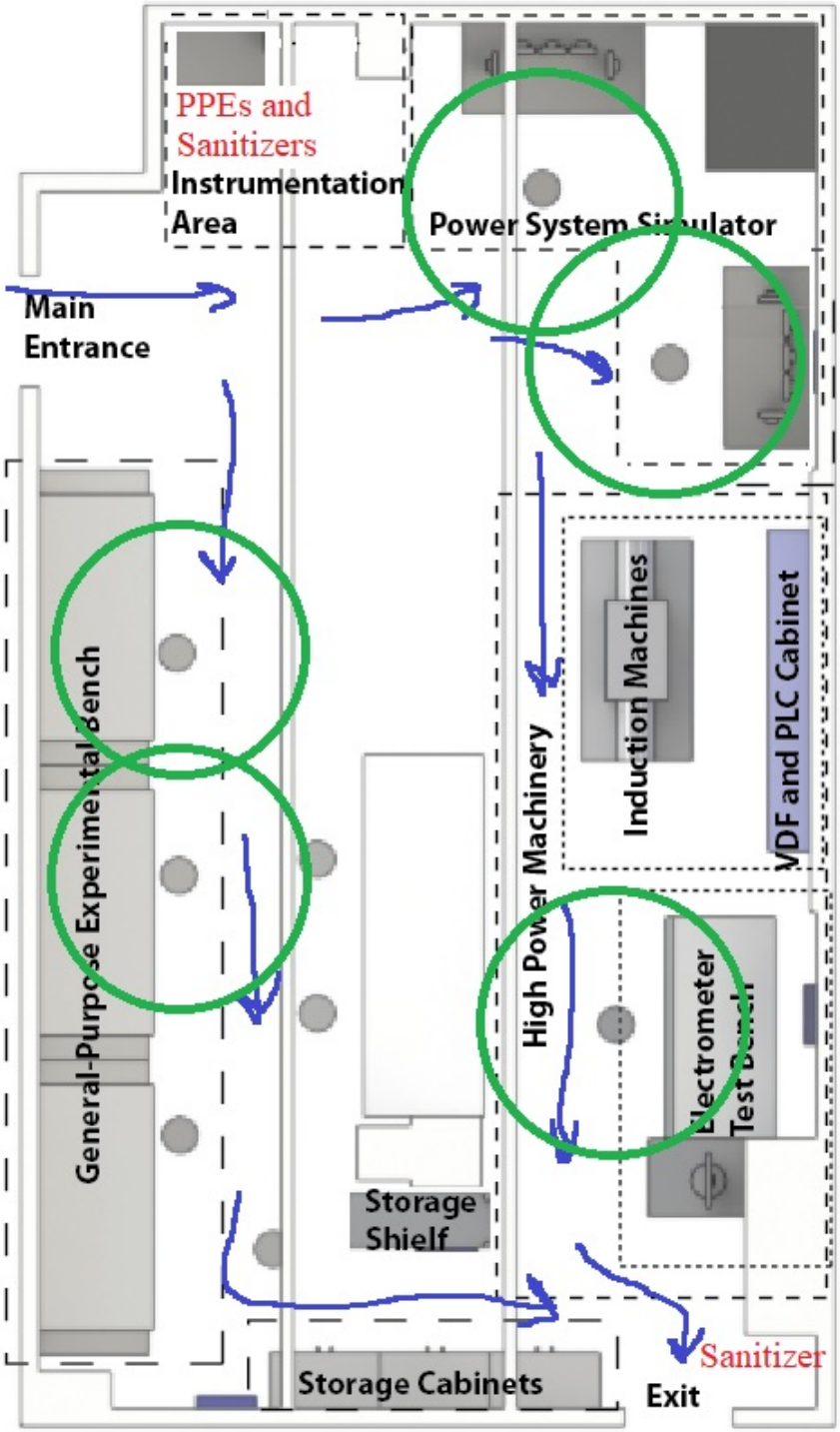

Fig. 2. Location of working areas and benches in Kaiser 3085-B Experimental Laboratory, and the direction of traffic.

Section 4 – Engineering Controls

6. Cleaning and Hygiene

Detail the cleaning and hygiene regimen required to be completed by HQP, research staff and the PIs for common areas/surfaces (Custodial has limitations on cleaning frequency, etc.).

Outline specific cleaning processes and schedule for high-touch equipment, specialized/sensitive equipment or other unique circumstances to your lab/workspace. Detail how and what types of cleaning products and disposal options you will provide. If possible, include cleaning stations/infrastructure on your lab photos/plan.

- *Cleaning and sanitization are crucial to maintain a safe lab/workspace. Provide as much detail as possible on your cleaning plans i.e. when, who, how, provide a checklist, etc. Identify and discuss what surfaces/areas need to be cleaned.*
- *Discuss how you plan on providing the required supplies and training (in addition to that provided by UBC SRS). Consider signage i.e. 'ready for use' vs 'needs cleaning', having 'hot zones' for smaller equipment/tools (bins to collect soiled equipment so others don't use it).*
- *In dry labs and office areas where sinks are not available, place hand sanitizer stations adjacent to exit doors and signage suggesting the use of sanitizer after touching shared items such as knobs, printers, keyboards, etc.*
- *Discuss how you will ensure safe disposal of used cleaning supplies and if applicable, any hazardous waste needs (from previous operations or adapted to new plan).*

Personnel will be required to sanitize hands when entering and leaving the room. The hand sanitizers will be placed on the tables as shown in Figs. 1 and 2.

When using the keyboards and mice that are attached to the real-time simulators, the workers will be required to wear gloves, and wipe the working services with disinfecting alcohol wipes before and after their use. Scheduling will be done in such a way that there is a significant (72 hours) time separation if the same equipment needs to be used by another person.

If an item cannot be cleaned immediately, and there is a risk that it could be touched by another person before it is appropriately cleaned, proper signage will be attached to that item to state that it has not been cleaned yet.

We will provide a checklist for cleaning. We will ask all members returning to the lab to read an appropriate document regarding cleaning and disinfection. All returning students and researchers will be required to take the online training course and pass the test.

In absence of a specific write-up provided by ECE or APSC, we will use the following procedures:

https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cleaning-disinfection.html

UBC and ECE is purchasing the PPEs and sanitizers centrally, and we will try to use those and place them on the two dedicated areas identified in K3085-A and K3085-B, as shown in Figs. 1 and 2.

In the absence of specific PPEs provided by APSC, we will purchase our own non-medical face masks, gloves and hand-sanitizers to last several weeks and place them in dedicated areas identified in K3085-A and K3085-B. It is also noted that the researchers will be made aware of the limitation of using non-medical masks according to UBC guidelines linked below:

https://srs.ubc.ca/covid-19/health-safety-covid-19/working-safely/non-medical-masks/

Used cleaning supplies and PPEs will be discarded in the garbage can near the exit door of each lab. The persons in the lab will also monitor the remaining supplies of PPEs and report to the supervisor in advance when the supply becomes low and needs to be refilled.

7. Equipment Removal/Sanitation

Detail your appropriate removal of unnecessary tools/equipment/access to areas and/or adequate sanitation for items that must be shared that may elevate risk of transmission, both research-related (i.e. instruments, tools) and general (i.e. coffee makers in break rooms)

Our experimental lab K3080-B is divided into several areas by its usage. We will assign control and coordination of these areas to the respective users. We will assign responsibility for coordinating the use of equipment to the students who are the heaviest users of respective equipment.

Any equipment that may be used by subsequent students will be sanitized before and after each use in addition to time separation and scheduling, as explained in Subsection 6.

- *Consider assignment of key pieces of equipment and label with the name of the assigned employee. Consider especially larger pieces of equipment that require >1 person to operate.*
- *If equipment cannot be individually assigned, then consider and explain your sanitation regime (or reference it above)*
- *Consider closing breakrooms or limiting access via a sign-up sheet*

8. Safety Infrastructure Requests (Partitions, Plexiglass installation)

Describe any needs for safety infrastructure i.e. physical barriers, plexiglass installation required for your lab/workspace and if possible include them on your photos/room plan.

With our approach to physical distancing and already existing partitions in K3085-A, we do not believe there is a need for Plexiglas barrier installation.

- *Refer to Worksafe's "Designing Effective Barriers" guidance*

Section 5 – Administrative Controls

9. Communication & Training Strategy for Employees

Describe how you (the PI) have or will communicate the risk of exposure to COVID-19 in the workplace to your HQP/research staff/other employees and the safety controls in place to reduce such risk.

The PI has weekly Zoom meetings with my group, and these issues have been discussed with all students who desire to return to lab. We are also planning to have two Google Doc for scheduling and a Slack channel. As well, we agreed to post mobile phone numbers within the lab in order to make sure that everyone can be reached.

Detail how you will ensure that all employees successfully complete the **Preventing COVID-19 Infection in the Workplace** online training and orientation to your specific safety plan.

We will have a special meeting to make sure that everyone understands the importance of training. All the above personnel will be required to complete the COVID-19 training and a written record of this will need to be provided to the PI before the PI formally authorizes the personnel's return to the lab.

- *Outline the expectations for all employees returning to the workplace and describe how an employee would raise concerns*
- *Clearly indicate that employees with symptoms MUST stay home*
- *How have you adapted to new risks in terms of training for existing and new staff*
- *All processes must be documented*

10. Signage

Detail the type of signage you will utilize and how it will be placed (e.g. floor decals denoting one-way walkways and doors, 'cleanliness state' of equipment/instruments, hand-washing guidance). See WorksafeBC for signage guidelines and templates.

Instructions will be posted on the four doors of the lab. ECE Engineering Services will be placing the Arrows signs on the floor indicating the direction of walking to ensure one-way traffic according to the plan shown in Section 5, see Figs. 1 and 2. The two disinfectant/sanitizer stations (see Figs. 1 and 2) will have associated instructions. Common areas will have instructions for cleaning and a sign-up sheet showing all past users and the cleaning record.

- *Use decals: In spaces where one direction of travel can be assigned, assign a clockwise direction of travel using tape on floors for people to move around safely, otherwise practice walking on the right and yielding to oncoming traffic.*

11. Emergency Procedures & Reporting

PIs must ensure that all employees entering the lab should be aware of the Building Emergency Response Plan (BERP) and have access to it. If applicable, detail your strategy to amend your lab's emergency response plan procedures during COVID-19.

Emergency procedures and the Kaiser Building Safety and Emergency Plan will be discussed with the group at our meeting, prior to returning to the lab.

See the SRS guidelines for handling potential COVID-19 incidents here: https://srs.ubc.ca/covid-19/health-safety-covid-19/reporting-covid-19-exposure/

12. Monitoring

Describe how you will monitor your workplace (supervisor, departmental safety representative, other) and update your plans as needed; detail how employees can raise safety concerns (e.g. via the JOHSC or Supervisor).

- *Identify the person(s) responsible for implementing and then monitoring compliance with the plan.*

On the days when anyone will have scheduled work, the persons working in the lab will be self monitoring in place. Moreover, the PI and the ECE Engineering Services will occasionally drop by and inspect compliance with the plan.

We have decided that for most days we will schedule 2–4 persons to be present and monitor each of our two labs. The responsible persons scheduled for each of the K3085-A and B labs will ensure that the Google Docs spreadsheet is kept up-to-date and accurate. The scheduled monitors will be instructed to report any safety incident or non-compliance with guidelines immediately to safety@ece.ubc.ca and to jurij@ece.ubc.ca and to call the PI on his cell.
As well, the room monitors will confirm that no incident occurred at the end of each day upon their departure from the lab. These reports will be entered online into the Google Doc spreadsheet and e-mailed to the PI, Juri Jatskevich.

Section #6 – Personal Protective Equipment (PPE)

13. Personal Protective Equipment

UBC has a central process for purchasing PPE. Describe what PPE you will require for your lab.

#	Type of PPE	Activity and PPE Use Rationale
100	Non-medical Face masks	One per person per day. Needed for departure/arrival in the lab, and for other potential instances in which personnel may have difficulty maintaining physical distance. It is envisioned that the 4 allowed persons will attend approximately 3 days per-week and the supplies will last for two months (4*3*8 ~ 100 masks) **Use of masks is strongly encouraged, and required when working in common areas and equipment that may be used by other users.**
100 pairs	Gloves	Needed for cleaning common surfaces or any other surface that is suspected to have been touched and for manipulating objects that cannot be easily disinfected. It is envisioned that the 4 allowed persons will attend approximately 3 days per-week and the supplies will last for two months (4*3*8 ~ 100 pairs of gloves)
2	Bottles of alcohol disinfectant spray and boxes of wipes	Needed for cleaning common surfaces or any other surface and equipment that is suspected to have been touched.
8	Bottles of 72% hand sanitizer	4 locations are considered to have hand sanitizers as shown in the associated lab diagrams in Figs. 1 and 2: the two entrances and the two exists. It is also noted that the supplies are assumed to last for at least two months (each bottle will be fully used over one month).

- *If applicable list any other protective controls such as access to showers/laundering facilities*
- *Discuss how you will safely dispose of soiled PPE*

We have requested the ECE Engineering Services to install the stations for PPEs and sanitizers in K3085-A and B in the locations indicated in Figs. 1 and 2 above. The indicated numbers are expected to last for (2) two months, after which we will re-evaluate our needs. It is also noted that the students working in the lab will inform the PI to supply/refill PPEs when they are about to finish.

Acknowledgement

I confirm that this Safety Plan has been shared with all workers (HQP, research personnel, co-PIs, etc.) who will be accessing this space both through email and will be made available as a shared document.

Workers can either provide a signature or email confirmation that they have received, read and understood the contents of the plan.

Date	17 July 2020
Name (Manager or Supervisor)	Juri Jatskevich
Title	Professor

Date	17 July 2020
Name (Manager or Supervisor)	Jose Marti
Title	Professor

Date	17 July 2020
Name (Manager or Supervisor)	William Dunford
Title	Professor

Date	17 July 2020
Name (Manager or Supervisor)	Christine Chen
Title	Professor

Department/School Head/Director Approval

Name, Title

Date

Signature

X

Appendix

Please attach any maps, pictures, departmental policies or risk assessments applicable UBC Guidance documents, where necessary, and other regulatory requirements referred to in document.

APSC specifically requests photographs of your current lab layout, as well as your proposed usage layout i.e. where HQP will work, what areas will be closed off, where signage will be placed, etc. If floor plans of your lab/shared workspace is available, please append these as well.

Please see Figs. 1 and 2 above for the floor plan and layout of workplaces, direction of traffic flow, locations of PPEs, sanitizer stations, etc. Below are pictures of the workplaces that we intend to use as outlined in this plan.

Fig. A. Opal-RT Real-time simulator bench.

Fig. B. Typhoon HIL Real-time simulator bench.

Fig. C. RTDS Technologies NovaCor System rack real-time simulator.

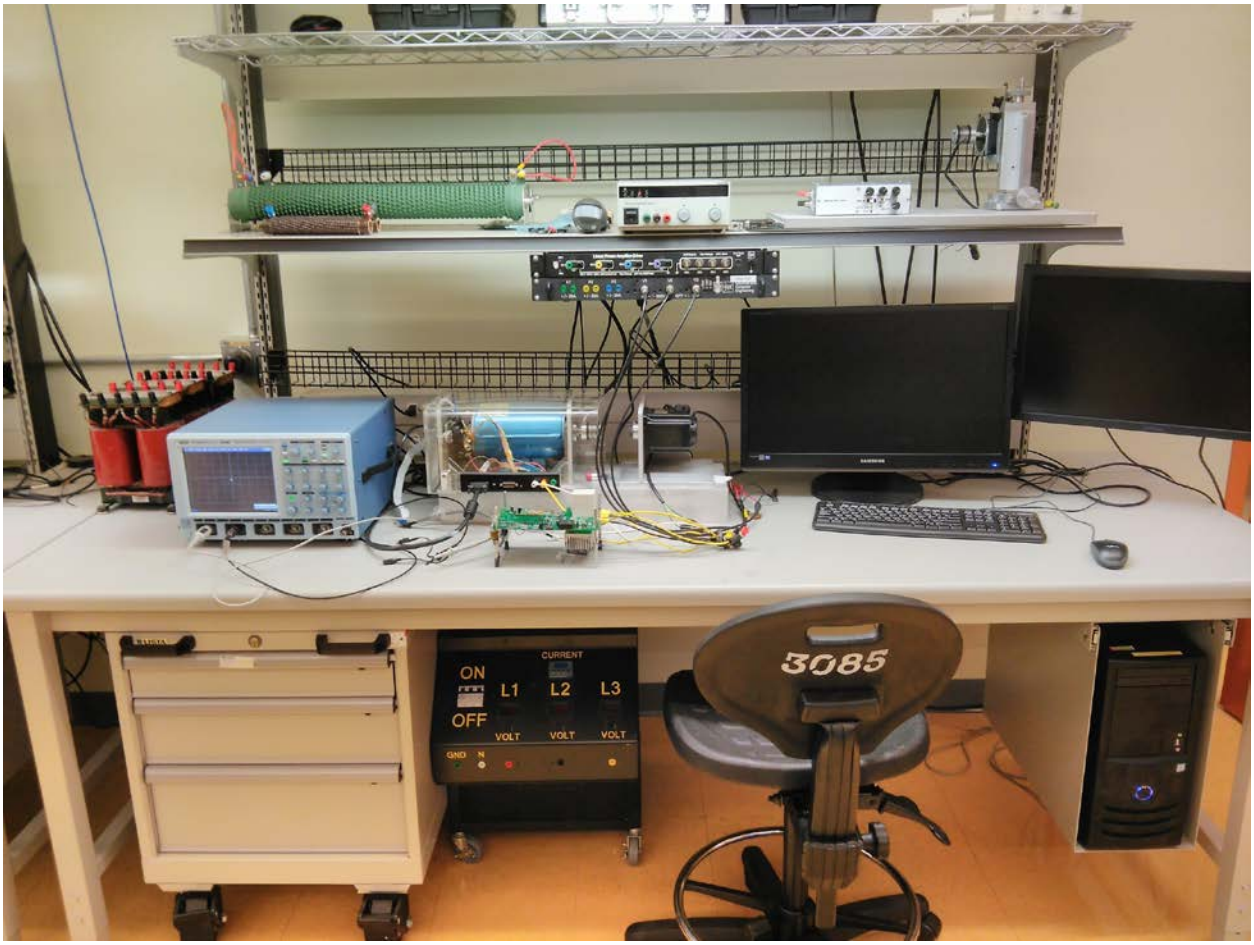

Fig. D. Electronics bench with low power rotating machines.

Fig. E. Electronics bench with low power general purpose instrumentation.

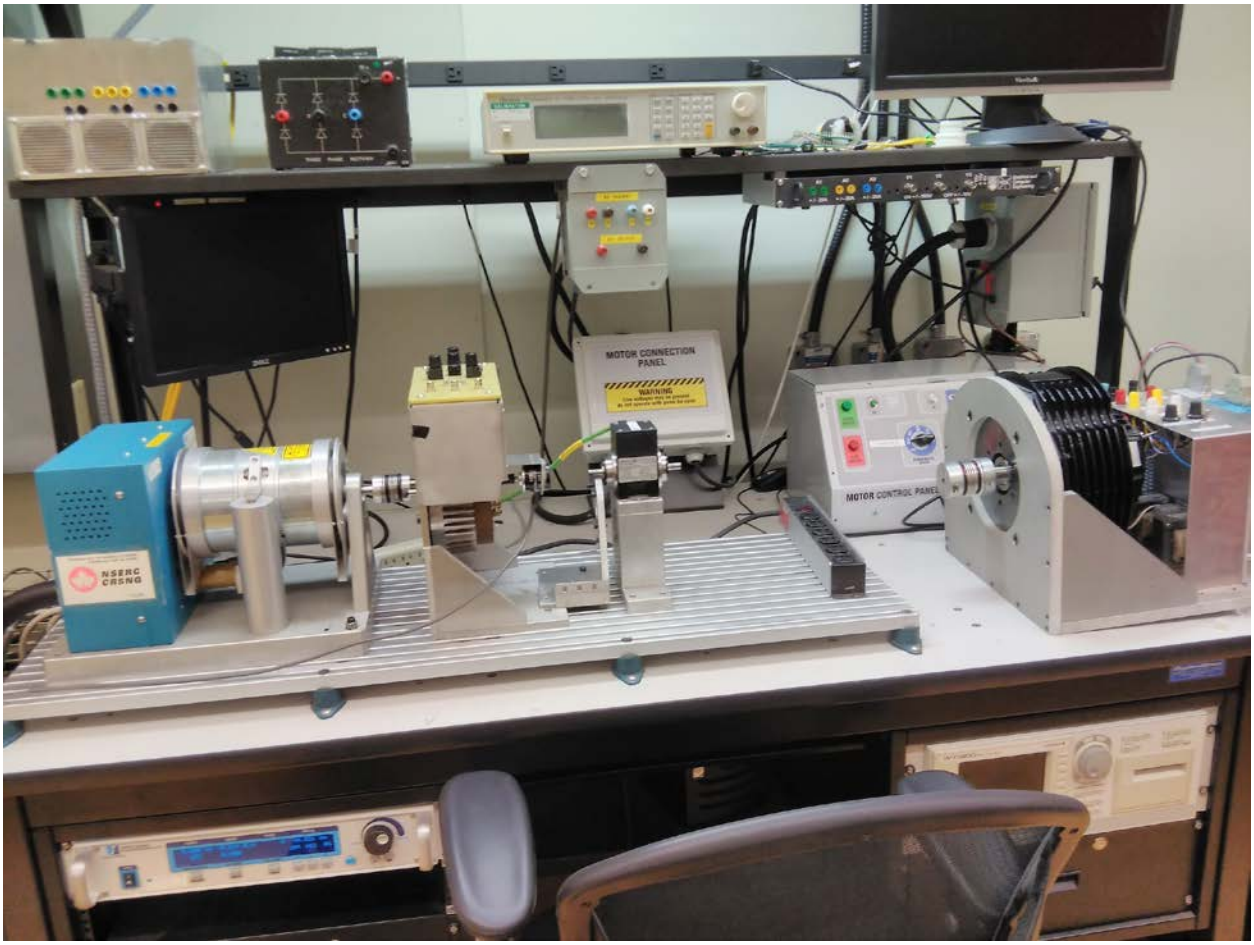

Fig. F. Electrometers-Magtrol motor testing dynamometer bench.